WHAT IS CLAIMED IS:

1. A system for transmitting downhole data to the surface comprising:

a communications medium operable to provide data transfer to the surface;

a first downhole instrument operably associated with the communications medium, the first downhole instrument being operable to measure a first downhole parameter and transmit first data at a first time relative to the first downhole parameter to the surface via the communications medium; and

a second downhole instrument operably associated with the communications medium, the second downhole instrument being operable to measure a second downhole parameter and transmit second data relative to the second downhole parameter to the surface via the communications medium such that the first data is interleaved with the second data.

2. The system of claim 1 wherein transmission capabilities of the first and second downhole instruments are substantially simultaneously initialized such that a common reference is defined for specification of the first and second times.

3. The system of claim 2 wherein the transmission capabilities are substantially simultaneously initialized by providing power to the first and second downhole instruments.

4. The system of claim 2 wherein the transmission capabilities are substantially simultaneously initialized by alternating the voltage.

5. The system of claim 2 wherein the first and second downhole instruments employ frequency shift keying to transmit downhole data.

6. The system of claim 2 wherein the communications medium is a medium selected from the group consisting of an instrument wire, a coaxial cable and a twisted pair cable.

7. The system of claim 2 wherein the first and second downhole instruments measure a parameter selected from the group consisting of temperature, position, pressure, differential pressure and density.

8. The system of claim 2 wherein the first downhole parameter and the second downhole parameter are identical parameters.

9. The system of claim 2 wherein the first downhole instrument and the second downhole instrument measure different downhole parameters.

10. The system of claim 2 wherein the first downhole instrument periodically measures the first downhole parameter and transmits first data relative to the first downhole parameter.

11. The system of claim 2 wherein the second downhole instrument periodically measures the second downhole parameter and transmits second data relative to the second downhole parameter.

12. The system of claim 2 wherein the first and the second downhole instruments further comprise quartz downhole gauges.

13. A system for transmitting downhole data to the surface comprising:

a communications medium operable to provide data transfer to the surface;

a first downhole instrument operable to measure a first downhole parameter;

a second downhole instrument operable to measure a second downhole parameter; and

a first frame associated with the communications medium, the first frame having a first time slot operable to transmit first downhole data relative to the first downhole parameter to the surface and a second time slot operable to transmit second downhole data relative to the second downhole parameter to the surface.

14. The system of claim 13 wherein transmission capabilities of the first and second downhole instruments are substantially simultaneously initialized such that a common reference is defined for specification of the first time frame.

15. The system of claim 14 wherein the transmission capabilities are substantially simultaneously initialized by proving power to the first and second downhole instruments.

16. The system of claim 13 further comprising a second frame associated with the communications medium, the second frame having a third time slot operable to transmit first downhole data.

17. The system of claim 13 further comprising a second frame associated with the communications medium, the second frame having a third time slot operable to transmit first downhole data in response to an event related to the first downhole parameter.

18. The system of claim 17 wherein the event is selected from the group of events consisting of temperature change, position change, pressure change, differential pressure change and density change.

19. The system of claim 13 wherein, responsive to a timing error, the first and second downhole instruments are reinitialized in order to correct the timing error.

20. The system of claim 19 wherein the timing error is selected from the group consisting of the first time slot leading, the first time slot lagging, the second time slot leading and the second time slot lagging.

21. The system of claim 19 wherein reinitializing the first and second downhole instruments further comprises cycling the power OFF and ON to the first and second downhole instruments.

22. The system of claim 19 wherein reinitializing the first and second downhole instruments further comprises alternating the power to the first and second downhole instruments.

23. The system of claim 13 wherein the first and second downhole instruments employ frequency key shifting to transmit downhole data.

24. The system of claim 13 wherein the communications medium is a medium selected from the group consisting of an instrument wire, a coaxial cable and a twisted pair cable.

25. The system of claim 13 wherein the first and second downhole instruments measure a parameter selected from the group consisting of temperature, position, pressure, differential pressure and density.

26. The system of claim 13 wherein the first downhole parameter and the second downhole parameter are identical parameters.

27. The system of claim 13 wherein the first downhole instrument and the second downhole instrument measure different downhole parameters.

28. The system of claim 13 wherein the first and the second downhole instruments further comprise quartz downhole gauges.

29. A method for transmitting downhole data to the surface comprising the steps of:

substantially simultaneously initializing first and second downhole instruments for data transmission;

measuring a first downhole parameter with the first downhole instrument;

measuring a second downhole parameter with the second downhole instrument;

transmitting first data relative to the first downhole parameter at a first time from the first downhole instrument to the surface via a communications medium; and

transmitting second data relative to the second downhole parameter at a second time from the second downhole instrument to the surface via the communications medium such that the first data is interleaved with the second data.

30. The method of claim 29, wherein the step of substantially simultaneously initializing the first and second downhole instruments further comprises substantially simultaneously providing power to the first and second downhole instruments.

31. The method of claim 29, wherein the step of substantially simultaneously initializing the first and second downhole instruments further comprises substantially simultaneously alternating the voltage supplied to the first and second downhole instruments.

32. The method of claim 29 wherein the step of transmitting first data further comprises the step of employing frequency shift keying to transmit the first data.

33. The method of claim 29 wherein the step of measuring a first downhole parameter further comprises the step of measuring a parameter selected from the group consisting of temperature, position, pressure, differential pressure and density.

34. The method of claim 29 wherein the step of measuring a second downhole parameter with the second downhole instrument further comprises measuring the same parameter as the first downhole parameter.

35. The method of claim 29 wherein the step of measuring a second downhole parameter with the second downhole instrument further comprises measuring a different parameter from the first downhole parameter.

36. A method for transmitting downhole data to the surface comprising the steps of:

measuring a first downhole parameter at a first downhole instrument;

measuring a second downhole parameter at a second downhole instrument;

sending first data relative to the first downhole parameter via a first time slot of a first frame for communication to the surface; and

sending second data relative to the second downhole parameter via a second time slot of the first frame for communication to the surface.

37. The method of claim 36 further comprising the step of substantially simultaneously initializing the first and second downhole instruments for data transmission.

38. The method of claim 36 further comprising providing a second frame having a third time slot for transmitting first downhole data relative to the first downhole parameter for communication to the surface.

39. The method of claim 38 further comprising the step sending first data in the second frame responsive to an event selected from the group consisting of temperature change, position change, pressure change, differential pressure change and density change.

40. The method of claim 36 further comprising the step of, responsive to a timing error, reinitializing the first and second downhole instruments.

41. The method of claim 40 further comprising the step of detecting the timing error from the group consisting of a leading first time slot, a lagging first time slot, a leading second time slot and a lagging second time slot.

42. The method of claim 40 wherein the step of reinitializing the first and second downhole instruments further comprises cycling the power OFF and ON to the first and second downhole instruments.

43. The method of claim 40 wherein the step of reinitializing the first and second downhole instruments further comprises alternating the voltage to the first and second downhole instruments.

44. The method of claim 36 wherein the step of sending first data further comprises the step of employing frequency shift keying to transmit the first data.

45. The method of claim 36 wherein the step of measuring a first downhole parameter further comprises the step of measuring a parameter selected from the group consisting of temperature, position, pressure, differential pressure and density.